

Appl. No. 10/065,922
Amdt dated February 16, 2004
Reply to Office Action of December 03, 2003

REMARKS AND ARGUMENTS

Status of the Application

Claims 1-5, 11, 13-15 and 20-23 are pending in the subject application. Claims 1-5, 11, 13-15 and 20-23 are rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-5 and 20-22 are rejected under 35 USC § 102(e). Claims 11, 13-15 and 23 are rejected under 35 USC § 103(a).

Rejection under 35 USC § 112

Claims 1-5, 11, 13-15 and 20-23 are rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular, the Examiner states that the language "sufficiently thick" in claim 1 is vague and indefinite. Applicants respectfully disagree. However, to expedite prosecution, Applicants have deleted the objectionable language from claim 1. Applicants therefore submit that the rejection to the claims under 35 USC § 112 has been traversed and respectfully request its withdrawal.

Rejection under 35 USC § 102

Claims 1-5 and 20-22 are rejected under 35 USC § 102(e) as being anticipated by Gnadinger (US 2002/0153542 A1). Applicants respectfully disagree.

Claims 1 and 20, as amended, recite an integrated circuit and method of fabricating an integrated circuit, respectively, having a feature formed on a substrate covered with an insulating layer. A conductive radiation protection layer covers at least all portions of the feature which are sensitive to radiation damage. The conductive radiation protection layer is electrically isolated from the feature by the insulating layer.

Gnadinger discloses a 1 transistor (1T) memory cell which includes a transistor having a gate stack and first and second diffusion regions on opposite sides of the gate stack. *See* Gnadinger, paragraph 0009 and Fig. 2A, elements 41 and 41. The gate stack includes 3 sequential layers. The bottom layer is an interfacial layer, the intermediate layer is a ferroelectric layer and the top layer is a gate electrode layer. *See* Gnadinger, Fig. 2A, elements 31, 30 and 50.

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First and second contacts are coupled to the first and second diffusion regions and isolated from the gate stack by an isolation layer. *See* Gnadinger, Fig. 2A (elements 80, 70 and 71). Applicants submit that Gnadinger nowhere teaches or suggests providing a radiation protection layer which covers at least all portions of a feature which are sensitive to radiation damage.

The Examiner, in rejecting the claims, suggested that the contacts serve as a conductive radiation protection layer that covers at least a portion of the feature sensitive to radiation (i.e., the ferroelectric layer) and isolated from the feature by an insulating layer. Applicants submit that the conductive material merely serves as contacts and do not serve as a radiation protection layer. *See* Gnadinger, paragraph 0030. In fact, Gnadinger nowhere mentions nor is concern with the issue of radiation damage to portions of the feature which are sensitive to radiation.

Even if the Examiner were correct in his assumption that the conductive material of the contacts can serve as a radiation protection layer, it still fails to teach or suggest the invention as recited in claim 1 or 20. In particular, claims 1 and 20 recite that the radiation protection layer covers at least all portions of the feature which are sensitive to radiation damage. Applicants submit that the material of the contacts, as described in Gnadinger, cannot cover all portions of the feature (e.g., ferroelectric layer) which are sensitive to radiation damage, as presently recited in claims 1 and 20. If the contact materials were to cover all portions of the ferroelectric layer, the conductive material would need to completely surround at least the sides of the transistor. This would result in both contacts to be electrically coupled, shorting out the transistor and rendering the memory cell of Gnadinger inoperable. Therefore, Applicants submit that claims 1 and 20 are patentable over Gnadinger. Since claims 2-5, 11, 13-15 and 21-23 are directly or indirectly dependent on either claim 1 or 20, these claims are also patentable over Gnadinger. As such, Applicants respectfully request withdrawal of the rejection based on 35 USC § 102(e).

Rejection under 35 USC §103

Claims 11, 13-15 and 23 are rejected under 35 USC § 103(a) as being unpatented over Gnadinger as applied to claims 1-5 above, and further in view of Alugbin et al. (US Patent No. 5,851,870). Applicants respectfully disagree.

As discussed above, Gnadinger fails to teach or suggest covering at least all portions of a feature which are sensitive to radiation damage with a conductive radiation protection layer which is isolated from the feature by an insulating layer. The Examiner relies on Alugbin et al.

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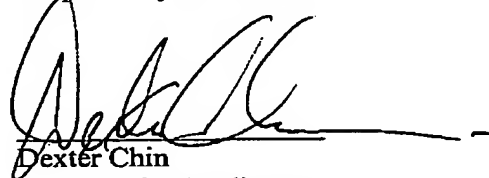
to teach noble metal layers are comparable or substitute metals for aluminum or that silicon oxide can serve as an insulating barrier to hydrogen. Even if these facts were true, Applicants submit that Alugbin et al. still fails to compensate for the defects of Gnadinger. Alugbin et al. nowhere teaches or suggests covering at least all portions of the feature sensitive to radiation damage with a conductive radiation protection layer which is isolated from the feature with an insulating layer. Therefore, Applicants submit that claims 11, 13-15 and 23 are patentable over Gnadinger and Alugbin et al., alone or in combination, and respectfully request withdrawal of the rejection based on 35 USC § 103(a).

Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance and the issuance of a formal Notice of Allowance at an early date is respectfully requested. Should the Examiner believe that a telephone conference would expedite prosecution of this application, please telephone the undersigned attorney at his number set out below.

Date: February 16, 2004

Respectfully submitted,


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